

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) Transmitter arrangement, comprising:

a first modulation unit ~~(50)~~ having a first digital signal processor ~~(52)~~ and a first analogue signal generator ~~(56)~~;

said first digital signal processor ~~(52)~~ having a first digital signal input ~~(51)~~;

a first power amplifier ~~(64)~~, connected to an output of said first analogue signal generator ~~(56)~~;

a second modulation unit ~~(70)~~ having a second digital signal processor ~~(72)~~ and a second analogue signal generator ~~(76)~~;

said second digital signal processor ~~(72)~~ having a second digital signal input ~~(71)~~;

a second power amplifier ~~(84)~~, connected to an output of said second analogue signal generator ~~(76)~~;

combiner device ~~(90)~~ connected to outputs of said first and second power amplifiers ~~(64,84)~~; and

transmitter device ~~(91)~~ connected to an output of said combiner device ~~(90)~~,
characterized in that said first digital signal processor ~~(52)~~ further comprises :

at least one first non-constant envelope modulation means ~~(53)~~;

a first signal component separator ~~(65)~~ connected to an output of said at least one first non-constant envelope modulation means ~~(53)~~;

a first output of said first signal component separator ~~(65)~~ being connectable to said first analogue signal generator ~~(56)~~;

first means for receiving modulation instructions ~~(49)~~;

at least one first constant envelope modulation means ~~(54)~~ connectable to said first analogue signal generator ~~(56)~~;

and first modulation selecting means (55) for connecting a modulation means to said first digital signal input (51) in response to received modulation instructions (49).

2. (Currently Amended) Transmitter arrangement according to claim 1, ~~characterized in that~~ wherein said second digital signal processor (72) further comprises:
at least one second non-constant envelope modulation means (73) of the same type as said at least one first non-constant envelope modulation means (53); and
a second signal component separator (85) connected to an output of said at least one second non-constant envelope modulation means (73);
an output of said second signal component separator (85) being connectable to said second analogue signal generator (76);
a sum of a signal of said first output of said first signal component separator (65) and a signal of said output of said second signal component separator (85) being equal to a signal of said output of said at least one first non-constant envelope modulation means (53).

3. (Currently Amended) Transmitter arrangement according to claim 1, ~~characterized in that~~ wherein a second output of said first signal component separator (65) being connectable to said second analogue signal generator (76).

4. (Currently Amended) Transmitter arrangement according to claim 1, ~~2 or 3~~, ~~characterized in that~~ wherein said second digital signal processor (72) further comprises:
second means for receiving modulation instructions (69);
at least one second constant envelope modulation means (74) connectable to said second analogue signal generator (76); and
second modulation selecting means (75) for connecting a modulation means to said second digital signal input (71) in response to received modulation instructions (69).

5. (Currently Amended) Transmitter arrangement according to claim 4, ~~characterized in that~~ wherein said first and second modulation selecting means (55, 75) are operable on a time slot basis.

6. (Currently Amended) Transmitter arrangement according to ~~any of the claims 1 to 5~~ claim 1, ~~characterized by~~ further comprising:

first power monitor (93) sensing a total power to said transmitter device (91) or a quantity directly related thereto; and

phase-shifter (63) connected to said first power monitor (93), arranged for causing a phase shift of an analogue signal generated by said first analogue signal generator (56) in response to said sensed total power.

7. (Currently Amended) Transmitter arrangement according to claim 6, ~~characterized in that~~ wherein said first power monitor (93) is a power meter of a load (92) of said combiner device (90).

8. (Currently Amended) Transmitter arrangement according to claim 6 ~~or 7~~, ~~characterized in that~~ wherein said phase-shifter (63) comprises means for complex multiplication of said phase shift ($\Delta\theta$) with a digital signal to be inputted to said analogue signal generator (56).

9. (Currently Amended) Transmitter arrangement according to claim 6 ~~or 7~~, using GMSK modulation, ~~characterized in that~~ wherein said phase-shifter (63) comprises means for introducing a phase offset ($\Delta\theta$) in said GMSK modulation, generated by using a table driven state machine in said first digital signal processor (52).

10. (Currently Amended) Transmitter arrangement according to ~~any of the claims 6 to 9~~ claim 6, ~~characterized by~~ further comprising means for providing said first and

second digital inputs ~~(51, 71)~~ with the same digital signal, and said first and second means for receiving instructions ~~(59, 69)~~ with the same instructions of a constant envelope modulation, allowing transmitter coherent combining.

11. (Currently Amended) Transmitter arrangement according to ~~any of the claims 6 to 10~~ claim 6, characterized by further comprising:

second power monitor ~~(96)~~ sensing a power on said output of said first power amplifier ~~(64)~~ and being connected to said phase-shifter ~~(63)~~; and

third power monitor ~~(97)~~ sensing a power on said output of said second power amplifier ~~(84)~~ and being connected to said phase-shifter ~~(63)~~;

said phase-shifter ~~(63)~~ being arranged for causing a phase shift ~~(Δθ)~~ in response to a comparison between said sensed total power and said sensed power on said output of said first and second power amplifier ~~(64, 84)~~, respectively.

12. (Currently Amended) Transmitter arrangement according to ~~any of the claims 1 to 11~~ claim 1, characterized in ~~wherein~~ that said first and second non-constant envelope modulation means are selected from the list of:

4-PSK modulation means;

8-PSK modulation means; and

means ~~(220)~~ for combination of at least two carriers.

13. (Currently Amended) Transmitter arrangement according to ~~any of claims 4 to 12~~ claim 4, characterized in ~~that wherein~~ said first and second constant envelope modulation means are GMSK modulation means ~~(54, 74)~~.

14. (Currently Amended) Method for generating a transmitter signal in a transmitter arrangement ~~(45)~~ having at least a first and a second modulation unit ~~(50, 70)~~ arranged in parallel, each one allowing for at least one non-constant envelope modulation

and at least one constant envelope modulation, said first modulation unit (50) having a first analogue signal generator (56), said second modulation unit (70) having a second analogue signal generator (76), comprising the steps of:

- providing digital signal (51, 71) to said first and second modulation units (50, 70);
- providing modulation information (49, 69) to said first and second modulation units (50, 70);

- creating a first input signal to said first analogue signal generator (56) by performing a constant envelope modulation of a first digital signal (51) provided to said first modulation unit (50) as a response of said modulation information (49) being a request for a constant envelope modulation, and by performing a non-constant envelope modulation of said first digital signal (51) and separating a first component of said non-constant envelope modulated first digital signal as a response of said modulation information (49) being a request for a non-constant envelope modulation;

- creating a second input signal to said second analogue signal generator (76) by performing a constant envelope modulation of a second digital signal (71) provided to said second modulation unit (70) as a response of said modulation information (69) being a request for a constant envelope modulation, and by performing a non-constant envelope modulation of said first digital signal (51) and separating a second component of said non-constant envelope modulated first digital signal as a response of said modulation information (69) being a request for a non-constant envelope modulation;

- generating a first output signal in said first analogue signal generator (56) according to said first input signal;

- generating a second output signal in said second analogue signal generator (76) according to said second input signal;

- amplifying said first output signal;

- amplifying said second output signal;

- combining said first and second amplified output signals to form an analogue transmitter signal.

15. (Currently Amended) Method according to claim 14, ~~characterized in that~~
wherein said providing steps are performed on a time slot basis.

16. (Currently Amended) Method according to claim 14 ~~or 15~~, ~~characterized in that~~
wherein said modulation information comprises a request for a non-constant envelope modulation, whereby said step of creating a second input signal to said second analogue signal generator ~~(76)~~ is performed on said first signal ~~(51)~~ in said first modulation unit ~~(50)~~, said method comprising the further step of transferring of said second input signal from said first modulation unit ~~(50)~~ to said second analogue signal generator ~~(76)~~.

17. (Currently Amended) Method according to claim 14 ~~or 15~~, ~~characterized in that~~
wherein said modulation information comprises a request for a non-constant envelope modulation, and said second digital signal ~~(71)~~ is identical with said first digital signal ~~(51)~~, whereby said step of creating a second input signal to said second analogue signal generator ~~(76)~~ is performed on said second signal ~~(71)~~ in said second modulation unit ~~(70)~~.

18. (Currently Amended) Method according to claim 16 ~~or 17~~, ~~characterized in that~~
wherein said non-constant envelope modulation is a 8-PSK modulation ~~(53,73)~~.

19. (Currently Amended) Method according to claim 16 ~~or 17~~, characterized in that said non-constant envelope modulation is a multiple-carrier GMSK modulation ~~(220)~~, whereby said method comprises the steps of providing a set of at least two digital signals to both said first and said second modulating units, whereby said creating steps comprise the steps of performing a GMSK modulation of each digital signal and digital ~~combining~~ combining said modulated signals to form a non-constant envelope multi-

carrier signal, whereby said separating step is performed on said non-constant envelope multi-carrier signal.

20. (Currently Amended) Method according to claim 14 ~~or 15~~, characterized in that wherein said modulation information comprises a request for transmitter coherent combining of a constant envelope modulation signal, and said first digital signal (51) is identical with said second digital signal (71).

21. (Currently Amended) Method according to ~~any of the claims 16 to 20~~ claim 16, characterized by comprising the further steps of:

monitoring a power of said analogue transmitter signal or a quantity directly related thereto; and

shifting a phase of said first output signal according to said power.

22. (Currently Amended) Method according to claim 21, ~~characterized in that~~ wherein said monitoring step comprises the step of measuring a power rejected during said combining step, whereby said power of said analogue transmitter signal is provided as a complementary quantity.

23. (Currently Amended) Method according to claim 21, ~~characterized in that~~ wherein said shifting step in turn comprises the step of adjusting an initial offset phase ($\Delta\theta$) of said first or second modulating in a guard period between two time slots.

24. (Currently Amended) Method according to claim 21 ~~or 22~~, characterized in that wherein said shifting step in turn comprises the step of adding a phase shift ($\Delta\theta$) in connection to the generation of the first output signal.

25 (Currently Amended) Method according to ~~any of the claims 16 to 24~~claim 16, ~~characterized in that~~ wherein said monitoring and phase shifting is performed when a constant envelope modulation with transmitter coherent combining is used, whereby said phase shifting is preserved when selecting a non-constant envelope modulation.

26. (Currently Amended) Method according to ~~any of the claims 16 to 24~~claim 16, ~~characterized in that~~ wherein said monitoring and phase shifting is performed during transmission of a constant amplitude period of a non-constant envelope signal.

27. (Currently Amended) Method according to ~~any of the claims 16 to 26~~claim 16, ~~characterized by comprising~~ the further step of measuring instantaneous power of said first and second analogue output signals, whereby said shifting is performed according to a comparison of said power of said analogue transmitter signal and said power of said first and second analogue output signals.

28. (Currently Amended) Method according to claim 27, ~~characterized in that~~ wherein said shifting in the case of transmitter coherent combining is performed according to:

$$\phi_{shift} = \cos^{-1}(P_{TR} / (P_{TX1} + P_{TX2})),$$

where P_{TR} is said total power and P_{TX1} and P_{TX2} are said power of said first and second analogue output signals, respectively.

29. (Currently Amended) Method according to claim 27, ~~characterized in that~~ wherein said comparison is performed during a period of a known training sequence in a time slot.

30. (Currently Amended) Method according to ~~any of the claims 14 to 29~~claim 14, ~~characterized by comprising~~ the further steps of:

reducing envelopes of said first and second signals when said modulated signal has a low amplitude.

31. (Currently Amended) Method according to claim 30, ~~characterized in that~~
wherein said step of reducing envelopes comprises minimizing of power consumption.

32. (Currently Amended) Method according to ~~any of the claims 14 to 31~~claim 14,
~~characterized by comprising~~ the further step of:
storing an adjusted phase shift value for each one of a set of used frequencies.

33. (Currently Amended) Method according to claim 32, ~~characterized by~~
comprising the further step of:
storing an adjusted phase shift value for each one of a set of used frequency
generators ~~(61A, 61B)~~ for each of said used frequencies.

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.